State Of California The Resources Agency of California

Memorandum

Date : May 24, 2002
Telephone: ATSS (916) 651-8836

To : **Morro Bay Energy Center Siting Committee:**
William J. Keese, Presiding Member
James D. Boyd, Associate Member

File:

From : California Energy Commission - Kevin M. Kennedy
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Subject : **REBUTTAL TESTIMONY**

Attached is staff's rebuttal testimony on Alternatives and Biological Resources (including cooling options for mitigation) for the Morro Bay Power Plant Project. This is being submitted to the parties in accordance with the schedule included in the notice of evidentiary hearings.

Attachment

cc: Morro Bay POS list

REBUTTAL TESTIMONY TO APPLICANT'S ALTERNATIVES TESTIMONY

Testimony of Susan V. Lee

Duke's testimony under San Joaquin Valley Sites (page 32) states that of the four valley sites considered in the Alternatives section, only the Gates Substation site was identified in the Energy Commission's February 2001 report entitled "Potential Peaking Power Plant Sites in California" (Report). In fact, the Energy Commission's peaking power site investigation continued after February 2001, but subsequent reports were not published. The four San Joaquin Valley (SJV) sites considered in the Alternatives section were evaluated by Energy Commission staff in March of 2001 and data from those site visits was made available within the Energy Commission. Each of the four SJV sites (Avenal, Gates, Lemoore, Pleasant Valley) was considered to be feasible for a peaking power plant.

While each of the SJV sites considered in the Alternatives section was initially identified as a result of the peaker study, it is noted that there are other potential power plant sites beyond those identified in that Energy Commission study. The peaker study focused on identifying sites based on specific criteria (proximity to substations, military bases, and prisons). By broadening those criteria, other feasible sites can be identified (e.g., Duke's Avenal Energy Project and Calpine's San Joaquin Valley Energy Center in the City of San Joaquin). The Report was never intended to serve as an identification of the only sites that could be considered for a CEQA-based alternatives analysis, and a conclusion that it is inappropriate to use sites not identified in the Report in an alternatives analysis is unwarranted.

REBUTTAL TESTIMONY TO APPLICANT'S TERRESTRIAL BIOLOGICAL RESOURCES TESTIMONY

Testimony of Andrea Erichsen and Richard Anderson

This document provides staff's response to the Applicant's testimony regarding impacts of the proposed Morro Bay Power Plant Project to terrestrial biological resources.

Staff has determined that the project will create significant and potentially significant impacts to listed species under CEQA and was unable to recommend approval of the use of Camp San Luis Obispo and the Craft Temporary Parking Area due to the need for more data on Morro shoulderband snail occurrence and an impact analysis. Staff asserts that the conclusions of the FSA testimony are accurate and reflective of the biological impacts and concerns as determined through public and agency workshops, available biological data, and expert opinions articulated by the appropriate natural resource agencies including: the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Game (CDFG), the California Coastal Commission (CCC), and the California Department of Parks and Recreation (DPR).

Where additional information from the Applicant is still required or is still pending complete evaluation, staff has incorporated this uncertainty and indicated that final mitigation will be determined in consultation with appropriate agencies after the needed data (e.g. Morro shoulderband snail protocol surveys) are available. During the CEC public workshop on March 21, 2002 many of the impacts to habitats and species were discussed in detail. This workshop was attended by the USFWS, CDFG, CCC, DPR, the Applicant, and others. Staff determined its position on the quantity and quality of habitats to be impacted based upon the information shared and discussed at that public workshop as well as the information provided by the Applicant, DPR, and other agencies.

In this rebuttal testimony, staff focuses on responding to the Applicant's disagreements with staff's Conditions of Certification.

First however, we are pleased that the Applicant concurs with the following Conditions of Certification:

BIO-T-1
BIO-T-3
BIO-T-4
BIO-T-5
BIO-T-10
BIO-T-12
BIO-T-17

On pages 2-3 of the Applicant's Terrestrial Biological Resources testimony, the Applicant suggests revisions to the following Conditions of Certification:

1. BIO-T-2 Duties of the Designated Biologist

The Applicant requested the addition of wording to item 4 that would allow additional, specifically trained on-site personnel to conduct daily inspections for animals that may be entrapped or endangered by construction structures or activities. Staff understands this concern for the protection of wildlife and points out that, under BIO-T-2 Item 2, the Designated Biologist is provided with the duty to supervise. Below is item 2 under BIO-T-2 with staff's additions to Items 2 and 4 (underlined below) per the Applicant's request:

BIO-T-2 Item 2. Be available to supervise or conduct mitigation, monitoring, and other biological resources compliance efforts, and supervise trained and approved biological monitors particularly in areas requiring avoidance or containing sensitive biological resources, such as wetlands and special status species or their habitat; "

BIO-T-2 Item 4: Inspect active construction areas where animals may have become trapped prior to construction commencing each day**.** Trained and approved biological monitors may also be authorized by the Designated Biologist to perform this duty. At the end of the day, inspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (parking lots) for animals in harms way;

2. BIO-T-6 Closure Plan

The Applicant requested the deletion of items 1 and 2 from this condition, which require the applicant to address the removal of transmission conductors and powerplant facilities in the closure plan.

Staff does not agree to these changes. This standard condition is intended to ensure that the Project Owner addresses biological impacts in its Closure Plan. Removal of these facilities when they are no longer in use is an important option with biological resources implications that both the project and owner and the Commission will wish to consider. The language in Bio-T-6 should remain as is.

3. BIO-T-7 CDFG Incidental Take Permit.

The Applicant requested the clarification of this standard condition regarding Take Permits from CDFG. Staff is willing to clarify this condition by adding that if a take permit is not required then a Consistency Determination (section 2080.1) is sufficient. Staff's proposed changes are underlined below:

BIO-T-7 The Project Owner shall acquire an Incidental Take Permit from the California Department of Fish and Game (CDFG) (per Section 2081(b) of the California Endangered Species Act) and/or a Consistency Determination (under section 2080.1) and shall incorporate the terms and conditions into the project's Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP).

Verification: At least thirty (30) days prior to the start of any site or related facilities mobilization activities the Project Owner shall submit to the CPM a copy of the final CDFG Incidental Take Permit) and/or a Consistency Determination (under section 2080.1).

4. Changes to the Timing of Other Permits

The Applicant suggested that the Streambed Alteration Agreement (**BIO-T-8**), the Regional Water Quality Control Board (RWQCB) Certification **(BIO-T-9**), and the Army Corps of Engineers (ACOE) Section 404 Permit (**BIO-T-11)** should be submitted to the CPM *"at least 30 days prior to the start of the activity requiring such authorization".* Staff is unwilling to alter these conditions.

Currently the verification for these standard conditions reads: At least thirty (30) days prior to the start of any site or related facilities mobilization activities the Project Owner shall submit to the CPM a copy of the final CDFG Streambed Alteration Agreement (or RWQCB, or ACOE permit).

The above three standard conditions should not be amended per the Applicant's suggestion. Staff needs to rely on the fact that the permits will be obtained before site mobilization and sees no reason why the permits should not be well under way at this time. There is also a risk that if the applicant has not obtained the permit(s) until after initiation of site mobilization or construction, there may be problems obtaining the permit(s), which could delay completion of the project.

5. **BIO-T-13** Construction Mitigation Management to Avoid Harassment or Harm
   Item 1: This is a standard condition and if the Applicant requires clarification, staff is willing to amend **Item 1** as follows (underlined below):

BIO-T-13 Item 1: All required avoidance and minimization measures will be in place, inspected, and approved by the Designated Biologist before site mobilization activities that may impact the sensitive areas and wildlife.

Item 7: The Applicant seeks to clarify that this condition does not imply "all" burrowing animals. Because the main concern of this item is related to burrowing owls, staff agrees to delete this item as these impacts may be avoided under Item 5 which deals specifically with burrowing owls.

Item 8: This condition was written with the intention to construct the sound wall in accordance with the Applicant's proposal. Staff accepts the Applicant's changes to this condition and the new item 8 will read as follows (underlined below):

BIO-T-13 Item 8: The sound wall proposed by the applicant must be approved by the CEC and shall be constructed to reduce noise impacts to riparian areas and other ESHAs during construction and operation of the MBPP.

Item 15: Staff will amend this condition as follows:

BIO-T-13 Item 15: The use of down-facing and shielded lighting at all appropriate locations to protect sensitive biological resources from exposure to bright night lighting.

Item 20: Staff does not approve this proposed change from 9 a.m. to 5 p.m. to 8 a.m. to 5 p.m. on weekends. Review of staff's Opening Brief on Group II topics and the transcript from the January 30 hearing on noise demonstrates that staff recommended that the timing of noisy activities be limited to between the hours of 9:00 a.m. and 5:00 p.m. on weekends.

6. BIO-T-14 Habitat Compensation

Staff disagrees with the Applicant's rebuttal regarding **Item 8 of BIO-T-14**. Impacts and costs will not be modified at this time.

Item 8a: Staff's testimony is based upon evidence obtained from the Applicant and expert opinions of the USFWS, CDFG, and DPR. Staff will not alter Item 8a.

Item 8b: The Applicant may disagree with the 1.35 acres of impacted (in terms of lost habitat value due to degradation caused by human activities) riparian habitat. However, the Applicant itself provided the map that quantified the acreage to be impacted. Please refer to: Letter to Mr. Richard Anderson from Terry Huffman of the Huffman-Broadway Group, re: Morro Bay Power Plant Modernization Project (dated April 4, 2002) transmitting calculation of acreage of riparian habitat within 150' of MBPP and acreage of wooded area between plant and boatyard.

Item 8c: Staff disagrees with the Applicant's conclusions on biological impacts of the proposed project. Staff will not change or delete this condition as requested by the Applicant. Staff has based its testimony on agency input and biological data provided by the Applicant (although some of the data are incomplete). Least Bell's vireo is not listed in this condition. The site is clearly significant habitat for an endangered species, the Morro shoulderband snail that was previously not known to exist there. The site is also potential dispersal habitat for the California red-legged frog, which has been documented in the area. Staff understands that the Applicant will minimize and avoid impacts to special status species. The proposed mitigation ratio is not high given the new data on the importance of this area to Morro shoulderband snail. The acreage discussed at the March 21, 2002 workshop was stated as a maximum of 50 acres. Thus, the quantity stated in this condition (37.5 acres) is lower. Based upon forthcoming data, and input from the USFWS and CDFG, staff may need to increase or decrease the mitigation or deny use of the area due to impacts to Morro shoulderband snail at Camp San Luis Obispo. This decision depends in part on requirements set forth in the USFWS Biological Opinion.

Item 8d: The Applicant states that "Duke is unwilling to enter into a monetary agreement for mitigation if, after payment of the considerable sums of money being discussed, the funding will be subject to after-the-fact calculations." Staff contends that the level of mitigation required is dependent upon the Applicant

providing the data necessary to complete an analysis of impacts. Staff is not in control of this fact.

In terms of the proposed modification to the verification for **BIO-T-14**, staff does not agree to alter this standard verification due to the nature of the mitigation structure and the desirability of having the plan ready and implemented before site mobilization.

7. BIO-T-15 Mitigation for Impacts to Snowy Plover

Staff disagrees with the Applicant's rebuttal regarding impacts to snowy plover and will not modify its testimony. Staff's testimony is based upon evidence obtained from the Applicant (data on special status species in the area, and the Applicant's proposal), and data, reports, and expert opinions of the USFWS, CDFG, and DPR. Staff is working with the USFWS, CDFG, CCC, and DPR to improve the Applicant's latest proposed mitigation design (received May 14, 2001). The final snowy plover mitigation plan will be included in the BRMIMP as well as within the USFWS Biological Opinion.

Staff supports incorporation of specificity in terms of how monies will be spent by DPR with the goal of ensuring that the funds are used only for the purposes of the stated mitigation. This will be made clear in the BRMIMP following approval of the proposed plan. In addition, conditions set forth in the USFWS Biological Opinion will be implemented. Staff does not support limiting the measure to 5 years and recommends that the measure be required for the life of the proposed project. Staff has amended this condition as follows (underlined below):

BIO-T-15 The Project Owner will contribute funds of no more that $10,000/yr (adjusted for annual inflation rates) for installation of protective fencing for nesting snowy plover and monitoring of plover populations for the life of the project. The placement and timing of the fencing, and the specific annual monetary contribution from Duke Energy to DPR in support of the fencing program, shall be determined in consultation with the USFWS and DPR. During pre-construction and construction of the project, the project owner or its authorized agent shall submit to the CPM a monthly status report of all fencing and monitoring activities. Upon commencement of commercial operation (and throughout the life of the project), the project owner or its authorized agent shall submit to the CPM, in the Annual Compliance Report, all fencing and monitoring activities.

The Applicant requested that payment be triggered by the installation of the permanent bridge over Morro Creek rather than the start of site mobilization activities. Staff agrees with this clarification and agrees to amend the verification as follows (underlined below**)**:

Verification: Not less than 30 days prior to the start of site mobilization in preparation for the installation of the permanent bridge over Morro Creek, the Project Owner will provide a copy of the checks to the CPM. Fencing must be in place and approved by the Designated Biologist and DPR not less than 15 days prior to the start of site mobilization in preparation for installation of the permanent bridge over Morro

Creek. The Project Owner will also provide a letter from the land management organizations and agencies involved stating the amount of funds received.

8. **BIO-T-16** On-site Conservation Easements

The Applicant originally proposed to dedicate approximately 27.1 acres (27.07 acres) into conservation easements, and staff's conclusions about impacts to biological resources were based, in part, on this proposal. Staff continues to recommend that the Applicant provide the Den Dulk property as a conservation easement, although staff does not require that the Applicant implement its proposed Den Dulk dune scrub restoration plan. The Den Dulk is dune scrub habitat and lies immediately adjacent to the MBPP facility and will be bisected by the construction access road to be used by the proposed project. If the Applicant proposed to use this parcel as mitigation, staff finds it reasonable to include it as part of an on-site conservation easement because it may be adversely impacted by project activities and is dune scrub habitat that should be protected.

Regarding the 12.53 acres that the applicant now proposes to remove from the conservation easement, staff will consider altering this condition if the applicant provides confirmation that the 12.53 acres is protected by an Archeological Conservation Easement that also protects biological resources. Staff will not change the content of this condition until further verification is received.

REBUTTAL TESTIMONY TO APPLICANT'S AQUATIC BIOLOGICAL RESOURCES TESTIMONY

Testimony of Andrea Erichsen, Richard Anderson, and Michael Foster

INTRODUCTION

This document provides Staff's response to the Applicant's testimony regarding aquatic biological resources. In general, staff has not been persuaded by the applicant's arguments. Staff would like to respond to some of the applicant's statements in order to re-iterate staff's position.

ENTRAINMENT FATALITY

Staff has seen no credible documents, nor has the applicant provided any, that indicates that the species that will be entrained if the proposed new facility is built and operated will experience fatality rates of less than 100 percent. Staff and the independent scientists all assume 100 percent fatality.

WATER USE CAP

The applicant has offered to place two caps on the quantity of water pumped. The first is a daily cap of 475 MGD and the second is an annual average cap of 370 MGD. The applicant's offer creates an annual average MGD figure that is less than the historic water use figures found on **Aquatic Biological Resources Table 8.** They then argue that there is no impact beyond staff's identified CEQA baseline. However, the water use of biological concern is the daily cap of 475 MGD, not the annual average daily water use. Significantly, the proposed daily cap is the stated capacity of the new pumps , which could, under the applicant's proposal, be operated all day, for weeks, for even months, including at periods of time when organism concentrations are very high. The unpredictability of natural phenomenon (spawning, egg laying, transport events, etc.) surrounding the Morro Bay ecosystem does not allow for confident forecasting of the high or low concentration periods for lower power plant entrainment opportunities. Any responsible impact assessment will therefore use the maximum daily pumping capacity for determining impacts.

HABITAT ENHANCEMENT

The applicant proposes to comply with the requirements of Section 316(b) of the Clean Water Act by implementing a habitat enhancement program. Unfortunately, the applicant did not make a serious habitat proposal until *after* the FSA was filed. This has precluded staff from conducting any evaluation of the sufficiency of the proposal prior to hearings. Typically, applicants make mitigation proposals early in the process and staff asks data requests and conducts workshops in an effort to reach agreement with the applicant, agencies, and other interested parties. Working out the details of a habitat enhancement approach requires a lengthy collaborative interagency review process. As stated in our FSA, staff has many questions and concerns about the ability of this type of program to meet fundamental requirements

applicable to mitigation under CEQA (unlike the applicant, staff believes the project causes adverse environmental impacts to aquatic resources), as well to ensure compliance with LORS. In addition, staff points out that regardless of whether impacts to aquatic resources under CEQA are addressed by a habitat approach or by other means, CEQA requires that the Energy Commission include an environmental assessment of any habitat approach that is approved by the Regional Board for 316(b) compliance. This assessment has not been conducted. Without additional information and workshops, it is difficult for us to see how these concerns could be addressed.

Staff noted in the FSA that any habitat proposal should contain specific objectives that can be shown to directly compensate for the type of harm caused by once-through cooling. The applicant apparently disagrees, as its testimony does not contain this information. (The Regional Board staff report refers to the need for additional information, indicating that it too believes that the proposal presented by the applicant is incomplete.) Lack of habitat enhancement program details and the resulting lack of a thorough staff analysis of the proposal means that the Committee does not have sufficient information to recommend approval of the project with a habitat enhancement component at this time and still comply with applicable legal requirements. Staff therefore does not recommend inclusion of a habitat enhancement program in any proposed decision at this time.

REBUTTAL TESTIMONY TO TESTIMONY OF APPLICANT AND THE CITY OF MORRO BAY ON STAFF'S *AQUATIC BIOLOGICAL RESOURCES APPENDIX A MORRO BAY POWER PLANT COOLING OPTIONS REPORT*

INTRODUCTION

The following testimony is provided in response to testimony filed on May 13, 2002, by Duke Energy Morro Bay LLC (Duke or applicant) and the City of Morro Bay relating to Staff's Cooling Options Report. The testimony provided is in response to Duke's testimony except where explicitly noted.

POWER PLANT OPERATION AND COOLING

Testimony of James Henneforth

AIR COOLED CONDENSER CRITERIA

Staff believes it is important to address two issues relating to the design criteria used in our analysis. First, Duke provided us with the criteria at our request. On September 5, 2001, Duke agreed to provide recommended values to be used as the design criteria for the alternative cooling analysis (Report of Conversation dated 9/5/01). On September 10, 2001, J. Henneforth provided blank tables for Duke to complete. The table requested information for design criteria for ISO (standard conditions), winter conditions, and summer conditions. On September 20, 2001, Duke provided one set of data on a consolidated basis. This is the data that the Staff used to perform their analysis.

The Staff analysis applied the criteria provided by Duke*, which represented a non-duct fired case*, and secured sizing, performance, and cost estimates from GEA, the supplier of air-cooled condenser systems. These conditions reflect baseload operating conditions for the combined cycle without duct firing. These conditions make maximum use of the waste heat from the combustion turbine generators to generate steam to drive the steam turbine generators. When duct firing is added, more power is produced in the steam turbine, but the overall plant efficiency drops off. Duct firing is an effective way to add more power capability to the plant, but the degree of duct firing needs to be evaluated against costs, as well as physical and environmental impacts. The staff's conceptual design can accommodate, but is not optimized for, duct firing.

The second point is related to the applicant's claim that the plant must be capable of generating 1,200 MW with duct firing under all conditions. Staff strongly believes that this is not a balanced approach to optimizing the overall plant configuration. Duke's own testimony and information from the AFC clearly demonstrate that

designing a facility to accommodate temperatures that are well above temperatures typically experienced in Morro Bay dramatically increase the size of the ACC needed. For example, the existing plant is capable of producing 1,002 MW under all temperature conditions, and Duke currently states that the proposed project could generate 1,200 MW across an ambient temperature range of 35° to 85°.[1] Duke's own testimony indicates that a plant using ACC could generate slightly under 1,000 MW without duct firing and slightly above 1,100 MW with duct firing at 64°, which is the average summer afternoon ambient temperature in Morro Bay (which is when peak demand is likely to occur). At 74°, which occurs only 1% of the time, the same facility would be capable of generating slightly under 950 MW without duct firing and slightly over 1,000 MW with duct firing. In contrast, a facility that could produce 1,200 MW at 85° would require an ACC that is twice as large as what staff analyzed. In other words, the staff analysis considered a facility that is virtually identical in output to the existing facility under almost any weather conditions expected in Morro Bay, and that can use duct firing to add more than 100 additional MW of 'peaking' capability under typical Morro Bay summer afternoon conditions. On the other hand, designing to a slightly higher capacity and to significantly higher temperature conditions than typically occur disproportionately increases the size of the ACC needed. By insisting on a capacity of 1,200 MW at 85°, the applicant is attempting to persuade the Commission that alternative cooling forces them into the position that the footprint of the ACC is too large to fit into the available space for the alternate 1 location. The Staff's conceptual plan for the ACC shows that an appropriately sized system will fit on either location without encroaching into PG&E property.

RELOCATION OF ANCILLARY EQUIPMENT AND BUILDINGS

The applicant's testimony states on pages 30 to 31 that several pieces of ancillary equipment and buildings would require relocation in order to place the ACC's at location alternate 1. Staff agrees that these items would require relocation but is of the opinion that none of them are required to be in near proximity to the units for the plant to operate properly. The equipment identified in paragraph 10.1.1 consists of both equipment that is presently on site plus equipment that must be constructed when the new units are installed. The new equipment includes the closed cooling water system, an administration/control room, a warehouse, a parking lot and ammonia tanks. Since these items are merely planned, they can easily be located elsewhere including open areas closer to the existing units. The applicant has stated that the area required by these items would require 70,000 to 75,000 square feet based on current configurations.

The applicant also states that the new location of these facilities would likely be directly over the existing underground cooling water tunnels. It is noted that this concern of the Applicant is not that the new ACC units would be over the existing tunnels but only the relocation of the exiting facilities. It is unclear why the applicant

[1] It is worth noting that the applicant's insistence that a basic requirement of the project is to achieve 1,200 MW nominal output at 85° is not consistent with the Process Flow Diagram Heat & Material Balance – Case 6 for the proposed project provided in the AFC. Those tables show net power output of 1,146.37 MW for the project at 100% load when duct firing at 85°.

would impose this constraint on itself when other areas on the existing property could be made available for these purposes. Staff concurs that relocation of facilities would necessitate longer pipe and electrical runs, but these are not uncommon considerations when site constraints exist. If the applicant feels that certain of these items must be closer to the units, such as the control room, they could be separated from the less critical components, such as the administration and warehouse buildings, and placed nearer to the power block equipment on a selected basis.

CONSTRUCTION ACCESS

In paragraph 10.1.2 the applicant states that the cooling alternatives eliminates all construction staging areas making construction difficult and possibly infeasible. In paragraph 10.1.3 the applicant states that 14-18 months would need to be added to the schedule to address construction impacts. These two statements appear to contradict one another since the additional schedule is presumably to address the constructability issues of the plant. Even so it is not uncommon to construct projects in congested areas where special handling and offsite staging are employed. Staff does not believe that the applicant has made a convincing case that construction access issues render an alternative cooling option infeasible.

CRANE ACCESS

The applicant expresses a concern about crane access for construction of the combustion turbines, heat recovery steam generators, and steam turbine generators. Staff questions whether they have attempted to minimize interferences by considering such things as temporary access through existing berms or through PG&E property. Following placement of the major components several months of work remains for the power block that does not require cranes nor significant staging areas. The applicant does not appear to have considered beginning construction of the ACC units during this period, which could significantly reduce the schedule impacts.

SEAWATER INTAKE/DISCHARGE TUNNELS

The applicant does not believe that the Staff's cooling alternatives could be built directly over the existing seawater discharge tunnels without cost or schedule impacts. Figure 2-17 in the AFC shows the location of the existing cooling water discharge tunnels. Based on this figure it does not appear that the ACC units as proposed by the Staff would need to be located directly on top to the tunnels and may not interfere with the operations of the existing plant at all.

SCHEDULE IMPACTS

Staff recognizes that the alternative cooling systems may impact the schedule but does not agree that the impact is potentially as great as stated by the applicant. Some of the reasons are stated above under comments on crane access. Additional items that could be considered to further minimize the schedule impact includes driving piles for the ACC during initial site preparation activities when similar operations are underway for other major plant components, then making the

ACC area available for access and staging. Further the applicant has not considered the time required for the excavation, placement and tie-in of the proposed once-through cooling water tunnels, as these would present similar problems in disrupting construction activities and adding time to the schedule and requiring shut down of the existing units. Another fact that the applicant did not consider is that if the ACC units do not interfere with the existing tunnels the existing units could operate without interruption until the new plant is ready to operate, which is not the case when they must tie in the new once through system and go through startup and commissioning.

MAINTENANCE

The applicant is correct that crane access is required for maintenance of the units and appears to have provided for such access along side and between the units. The application of the ACC does not appear to eliminate the access of cranes into the power block areas at the north and west for alternate 1 or south and west for alternate 2. The applicant also states their estimate is that a large crane will likely be required on a yearly basis. If this is the case, the installation of permanent gantry cranes is another possible solution for their concerns.

COST

Since Duke provided no details of their estimate it is difficult to fully evaluate all of their costs. The $40.5 million shown on page 46 for equipment is definitely high for the ACC only even considering their size increase over that of the staff proposal for the ACC. It is presumed they included other items of auxiliary equipment and materials. Since their breakdown did not show items such as normal overheads, indirects, fees, or contingency, it is assumed these values have been spread among the costs shown in the table and thus the direct comparison that they attempt to make to the Staff estimate is meaningless. Mark-ups for overhead, contingency, and fees are not shown and may not accurately reflect a competively bid price in today's market.

Duke states (page 53) that construction labor costs are typically 50% of the equipment and material costs and that the CEC erection cost factor is roughly 25%. The CEC estimate reflects direct labor with related indirect costs such as benefits and burdens shown separately. When these items are reflected in the construction labor cost the labor is 41% of the equipment and material costs. This is considered a reasonable ratio based on the information available at this stage of the project. Duke's estimate of $20 million for installation/labor would seem to indicate that over their estimated 16-month period they would be expending approximately $1.25 million per month on average. At a loaded hourly rate of $50/hour there would need to be approximately 143 people on site daily for the duration of construction of the ACC. This number of people appears higher than that which would be expected.

Duke indicates they believe the staff's costs are underestimated in part because they do not account for preparation/post erection cost. The staff estimate assumes a buildable level site and includes normal site preparation; including excavation for footings, backfill/compaction, piling, as well as installation of the steam duct,

electrical, and instrumentation. As stated the staff estimate did not include estimates for equipment relocation.

Duke's stated assumptions for calculating interest during construction (IDC) appear to be extreme. In addition to previous comments on this subject it is unclear if Duke considered rate of expenditures for the project including equipment progress payments, retentions, and contingency management. The testimony describing Duke's basis for their estimate of the IDC is somewhat confusing with times for schedule extension estimated to be 14 to 18 months for alternate 1 and 0 to 4 months for alternate 2 and cost of money shown as 6.5% to 7%. Even using Duke's non-optimized schedule of 16 months schedule extension, assuming $800 million fully expended and a cost of money of 6.5%, the IDC is $10 million less than they state.

The Applicant has also provided attachment 3, "Economic and Energy Supply Implications of Dry Cooling at Morro Bay," sponsored by Dr. Robert B. Weisenmiller of MRW & Associates, Inc. Section II of the attachment provides an estimate of operating margins for the Morro Bay project compared to a generic plant. It is doubtful that this comparison is meaningful since no scope has been provided for the generic plant and it is unlikely that most plants being currently developed are comparable to such a plant. For example, one might ask, what type of cooling system is assumed in the generic plant? While the Staff does not agree with the cost basis used by the Applicant, we note that using their numbers presented in the Table in Section II of the attachment indicates that the required operating margin for the dry cooling is shown as $3.7/MWh. This implies that the cost impact to the applicant for this addition is only $0.0037/kWh. This cost impact does not appear to be unreasonably high for the elimination of the environmental concerns caused by once through cooling.

BIOLOGICAL RESOURCES

Testimony of Andrea Erichsen and Richard Anderson

The Applicant states on page 20, section 8.2 that the alternative site 2 location for the dry and hybrid cooling designs would result in significant impacts to terrestrial biology. In particular, the Applicant focuses on impacts to environmental sensitive habitat areas (EHSA). Staff did not discount or fail to analyze this possibility in the feasibility analysis, but stated that impacts were potentially significant and would need to be avoided or mitigated as necessary to achieve less than significant impacts. The impacts would likely be mitigable to less than significant levels unless the presence of Morro shoulderband snail precluded the use of the area.

The Applicant's statement on page 21 that the proposed project will not permanently impact riparian/stream habitats is simply inaccurate. The Applicant provided a map quantifying the riparian impacts on-site due to proposed project activities. The FSA requires mitigation for these significant and permanent impacts (Condition of Certification BIO-T-14, 8b).

In addition, the proposed project will impact the Craft Temporary Parking Area (part of the alternative 2 site), the use of which was undetermined at the time the FSA was written. Staff has not approved use of this area due to concerns for the Morro shoulderband snail. If Morro shoulderband snail were detected in this area, the proposed project may not be able to use this area. Similarly, as stated in Staff's testimony, if alternative site 2 was chosen, this area would be questionable due to concerns for Morro shoulderband snail.

The Table 4 Comparison of ESHA impacts (and associated text on pages 21 and 23) is not accurate because it misrepresents the Applicant's impacts under the proposed project. As stated above, the proposed project will significantly impact riparian habitat and more than 0.33 acres of dune scrub habitat. In addition, the proposed project will temporarily impact riparian and stream habitats during pipeline installation and 4 acres, within an ESHA area, with a parking lot. There is also no reason to conclude that the impacts listed for the alternative cooling designs in Table 4 page 24, if accurate, are unmitigable. In addition, though some riparian vegetation may be impacted, the Staff asserts that the use of this ESHA area can be refined by shifting the facility location, relocated to a more suitable location, or avoided altogether.

The Applicant's statements (e.g. page 22 last paragraph) that the alternative cooling designs would result in impacts greater than the proposed project is not accurate. The proposed project will result in permanent impacts to riparian habitats.

The Applicant's comments on page 22 regarding impacts of installing a water supply line for the hybrid cooling system would be carefully considered if the hybrid design were approved. Like most water and gas supply lines, including those proposed by the Applicant, adverse impacts can result from construction of the pipeline. However, with required permits and avoidance and minimization measures, impacts can be mitigated to less than significant levels.

LAND USE

Testimony of Mark Hamblin

REBUTTAL TO CITY OF MORRO BAY TESTIMONY

COASTAL COMMISSION CONSISTENCY DETERMINATION

The following response is based on staff's understanding of the Coastal Commission's procedures in accordance to the California Coastal Act.

In its testimony, the City's states that:

> "The City disagrees with Staff that the Coastal Commission will make a determination of the Land Use consistency of the dry and hybrid cooling alternatives in its report to the Energy Commission. (Page133). The MBPP is not

within the original jurisdiction of the Coastal Commission and as such, it is the City of Morro Bay that must make the initial determination of consistency with the City's MBLCP, not the Coastal Commission."

Staff believes the City's statement (above) is incorrect. Under section 30413(d)(5) of the Public Resources Code (Coastal Act), the Coastal Commission is required to provide a report to the Energy Commission that makes findings on "the conformance of the proposed site and related facilities with certified local coastal programs in those jurisdictions which would be affected by any such development."

In addition, the City, by virtue of its own Policy 0.1 in the certified City of Morro Bay Coastal Land Use Plan, incorporated specific policies of the California Coastal Act (Public Resources Code sections 30263-30310) that require the involvement of the Coastal Commission. Specifically, within the City of Morro Bay Coastal Land Use Plan under the General Land Use Policies found on page 28 it states the following:

"Policy 0.1 The City adopts the policies of the Coastal Act (PRC Sections 30263 through 30310) as the guiding policies of the Land Use Plan."

Included in these policies are those identified in Public Resources Code section 30264 *Thermal electric generating plants* which states:

"Notwithstanding any other provision of this division, except subdivisions (b) and (c) of Section 30413, new or expanded thermal electric generating plants may be constructed in the coastal zone if the proposed coastal site has been determined by the State Energy Resources Conservation and Development Commission (a.k.a. Energy Commission) to have greater relative merit pursuant to the provision of Section 25516.1 than available alternative sites and related facilities for an applicant's service area which have been determined to be acceptable pursuant to the provisions of Section 25516."

The sections referenced within this section allow examination of the project by the Coastal Commission. Section 30413 requires the preparation of a consistency and suitability report by the Coastal Commission on the project for presentation to the Energy Commission on new power plants being placed in the Coastal Zone.

Specifically, subsection (a) of Section 30413 states:

"In addition to the provisions set forth in subdivision (f) of Section 30241, and in Sections 25302, 25500, 25507, 25508, 25510, 25514, 25516.1, 25523, and 25526, the provisions of this section shall apply to the commission (Coastal Commission) and the State Energy Resources Conservation and Development Commission with respect to matters within the statutory responsibility of the latter."

Subsection (d) states:

> “Whenever the State Energy Resources Conservation and Development Commission exercises its siting authority and undertakes proceedings pursuant to the provisions of Chapter 6 (commencing with Section 25500) of Division 15 with respect to any thermal powerplant or transmission line to be located, in whole or in part, within the coastal zone, the commission shall participate in those proceedings and shall receive from the State Energy Resources Conservation and Development Commission any notice of intention to file an application for certification of a site and related facilities within the coastal zone. The commission shall analyze each notice of intention and shall, prior to completion of the preliminary report required by Section 25510, forward to the State Energy Resources Conservation and Development Commission a written report on the suitability of the proposed site and related facilities specified in that notice. The commission's report shall contain a consideration of, and findings regarding, all of the following: (1) The compatibility of the proposed site and related facilities with the goal of protecting coastal resources. (2) The degree to which the proposed site and related facilities would conflict with other existing or planned coastal-dependent land uses at or near the site. (3) The potential adverse effects that the proposed site and related facilities would have on aesthetic values. (4) The potential adverse environmental effects on fish and wildlife and their habitats. (5) The conformance of the proposed site and related facilities with certified local coastal programs in those jurisdictions which would be affected by any such development. (6) The degree to which the proposed site and related facilities could reasonably be modified so as to mitigate potential adverse effects on coastal resources, minimize conflict with existing or planned coastal-dependent uses at or near the site, and promote the policies of this division. (7) Such other matters as the commission deems appropriate and necessary to carry out this division.”

Subsection (f) states the following:

> “The State Energy Resources Conservation and Development Commission shall forward a copy of all reports it distributes pursuant to Sections 25302 and 25306 to the commission and the commission shall, with respect to any report that relates to the coastal zone or coastal zone resources, comment on those reports, and shall in its comments include a discussion of the desirability of particular areas within the coastal zone as designated in such reports for potential powerplant development. The commission may propose alternate areas for powerplant development within the coastal zone and shall provide detailed findings to support the suggested alternatives.”

Section 25523(b) (which is part of the Warren-Alquist Act) requires the Energy Commission to include in its decision on an Application for Certification:

> "In the case of a site to be located in the coastal zone, specific provisions to meet the objectives of Division 20 (commencing with Section 30000) as may be specified in the report submitted by the California Coastal Commission pursuant to subdivision (d) of Section 30413, unless the commission specifically finds that the adoption of the provisions specified in the report would result in greater adverse effect on the environment or that the provisions proposed in the report would not be feasible."

Section 25526 (Warren-Alquist Act) states the following:

> "The commission (Energy Commission) shall not approve as a site for a facility any location designated by the California Coastal Commission pursuant to subdivision (b) of Section 30413, unless the California Coastal Commission first finds that such use is not inconsistent with the primary uses of such land and that there will be no substantial adverse environmental effects and unless the approval of any public agency having ownership or control of such land is obtained."

Finally, the City of Morro Bay Coastal Land Use Plan states on page 111 the following:

> "The Energy Commission must implement any recommendations made by the Coastal Commission unless those recommendations are found to cause more environmental damage or are not feasible.
>
> Therefore, the city's own Local Coastal Land Use Plan supports staff's conclusion that the Coastal Commission will have the responsibility of making a consistency determination with respect to the alternative cooling options identified in the staff cooling options report.

REBUTTAL TO APPLICANT'S TESTIMONY

COOLING ALTERNATIVES CREATE INCONSISTENCIES WITH LOCAL LAND USE POLICIES

The applicant states that the "dry and hybrid cooling alternatives are inconsistent with the City ordinances and standards." Staff acknowledges that there exist many policies applicable to the project within the City's LCP and General Plan; however the City LCP takes precedence, specifically those policies that are most protective of coastal resources. The City of Morro Bay Coastal Land Use Plan, General Land Use Policies (page 28) states that where there is an inconsistency within City of Morro Bay policies in key areas the following policies will apply:

> "Policy 0.1 The City adopts the policies of the Coastal Act (PRC Sections 30263 through 30310) as the guiding policies of the Land Use Plan."

Policy 0.2 Where the policies with the Land Use Plan overlap, the policy which is the most protective of coastal resources shall take precedence.

Policy 0.3 Where there are conflicts between the policies set forth in the Coastal Land Use Plan and those set forth in any other element of the City's General Plan or existing ordinance, the policies of the Coastal Land Use Plan shall take precedence."

The Energy Commission staff prepared the alternative cooling analysis to consider potential cooling system options that may be less damaging to coastal resources, specifically the marine and aquatic environment within the Morro Bay vicinity, than the proposed project. To the extent that there is an inconsistency within policies applicable to this project, staff believes that alternative cooling is more protective of the marine and aquatic environment than the use of once-through cooling.

In addition, we note that the City of Morro Bay Coastal Land Use Plan states on page 189:

"A healthy estuary and saltmarsh are of inestimable value for both aesthetic and economic reasons.

Policies are established to ensure the continued productivity of the wetlands."

The applicant cites the City's LCP policy 5.01 that states "Power plant expansion shall be limited to small facilities whose location would not further effect the view of Morro Rock from State Highway One. . . " (underline added). The LCP does not define a small facility under its Glossary of Terms.

The "Opportunities To Expand Coastal Power Plants in California" June 1980 prepared by the California Energy Commission (Table 17, pg. 113) concluded that an increase in generating capacity of less than 400 MW for the Morro Bay power plant constituted a "small" project. The proposed MBPP project represents an increase to the existing facility's capacity by a maximum of 198 MW regardless of the cooling system selected.

Two potential locations on the MBPP site have been identified for the placement of alternative cooling equipment for the purposes of this analysis. A more specific site location would be determined upon the submittal(s) and review(s) of more detailed design, construction and operational plans.

COASTAL COMMISSION CONSISTENCY DETERMINATION

As stated under the rebuttal to the City's response (above), Policy 0.1 of the City's adopted/certified City of Morro Bay Coastal Land Use Plan incorporates specific policies of the California Coastal Act (Public Resources Code sections 30263-30310) that require the involvement of the Coastal Commission, and direct the

Coastal Commission to make a consistency determination for the Morro Bay project.

Staff discussion of an "override" being conducted by the Energy Commission (Section 25525, Warren-Alquist Act) of the City's LCP and General Plan is premature at this time pending staff review of the Coastal Commission's written report that is required under Section 30413 of the Coastal Act.

Energy Commission Makes Zoning Consistency Determination

The applicant testified that it is the City, not the Energy Commission that is responsible for interpreting the zoning ordinance for the purpose of their certification. The applicant is wrong. Under Public Resources Code section 25525, it is the Energy Commission that is required to make findings about a project's conformity with local LORS, not the local government. Staff always recommends that the Committee give great deference to a local government's interpretation of its own laws. However, when staff believes that the local government has reached an erroneous conclusion, it presents its own analysis in the FSA and makes recommendations accordingly. Staff has done that in this instance, and recommended in the land use testimony that the Committee find that the project is a replacement thereby obviating compliance with the height limit or, in the alternative, make a finding that the project will confer greater than normal public benefits as discussed in the land use analysis. This finding is within the authority granted to the Energy Commission in the Warren-Alquist Act.

City's 30 foot height requirement of M-2 Zone

Staff disagrees with the applicant's argument that the placement of dry or hybrid cooling equipment would cause the Morro Bay Power Plant project to be inconsistent with the City's height limitation requirement of the M-2 Zone.

As discussed in our land use testimony, staff concluded, that the project is a replacement. As such, the 30 foot height limitation of the M-2 Zone does not apply to the new structures proposed by the MBPP project. This exemption extends to all structures that are part of the replacement project. The selected cooling system –

whether once-through, dry, or hybrid -- does not change the determination that the new generating facility is a replacement for the existing on-site facility to be demolished.

Other Issues - Alternative Cooling Equipment located within the City's ESH designation.

From the land use perspective, placement of dry and hybrid cooling equipment within the City's ESH (Environmentally Sensitive Habitat) general plan land use designation and the ESH overlay zone would create an inconsistency.

The City of Morro Bay Local Coastal Land Use Plan describes the "Environmentally Sensitive Habitat" (pg. 24) designation as follows:

> "This designation is intended to protect those areas in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and development. Resource-dependent activities such as fishing, claming, hiking, viewshed enjoyment, etc. , are allowable within this designation."

The City of Morro Bay's Zoning Regulations states that the purpose of the ESH overlay zone:

> "is to protect and preserve areas in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could easily be disturbed or degraded by human activities and development. Environmentally sensitive habitat overlay zones shall extend not only over an ESH area itself but shall also include buffers necessary to ensure continued protection of the habitat areas. Only uses dependent on the sensitive resources and which do not result in significant disruption of habitat values shall be permitted in the ESH overlay zone."
>
> "New uses and expansions of existing uses allowed in the primary zone classification shall be permitted unless specifically listed as allowed in the ESH overlay district. Proposed uses may require review and approval from the State Department of Fish & Game. Proposed uses may require permits from the Department of Fish & Game or may be prohibited. "

The placement of dry and hybrid cooling equipment within the City's ESH designation and overlay zone would not be a land use consistent with the ESH general plan description or the overlay zone's purpose and its specified uses under Section 17.40.040, City of Morro Bay Zoning Regulations. Therefore, the cooling system's equipment would have to be located elsewhere on the 107 acre project site and within the M-2 Zone District to avoid an inconsistency.

NOISE

Testimony of Jim Buntin

REBUTTAL OF CITY OF MORRO BAY TESTIMONY

The City correctly notes that fan noise may contain low frequency components and pure tones due to the passage of cooling fan blades, and the possibility of beats due to mismatched fan speeds. However, if a plant using alternative cooling were approved by the Energy Commission, staff would recommend that the Commission include a Condition of Certification (COC) identical to proposed NOISE-6. That COC would require that the plant noise (including that produced by fans) be free of pure tones, and that the operator demonstrate compliance by measuring plant noise in terms of one-third octave sound pressure levels. Compliance with the proposed NOISE-6 would ensure that the fans would not produce pure tones, which would

include beats. Staff knows of no problems that would affect the ability of a project using alternative cooling to comply with NOISE-6, and believes that such a condition is both effective and feasible for alternative cooling.

REBUTTAL OF APPLICANT'S TESTIMONY

Duke states that the cooling system vendor, GEA, indicated that the noise level estimates for the cooling fan arrays in staff's analysis should be increased by about 3 dBA to account for doubling the number of fan arrays. Staff has re-calculated the noise levels for each alternative using this assumption.

The resulting changes in noise levels are typically small, as the noise exposure in most cases is dominated by the power plant, not the cooling system.

Specifically, in Table 12 (ACC Alternative One) there are no changes in the cumulative plant and cooling system noise levels. In Table 14 (ACC Alternative Two), the cumulative plant and cooling system noise levels increase by 1 dBA at R4 (Radcliff and Berwick), and by 2 dBA at the Ball Field and the High School. In each of these cases, the resulting noise levels remain in compliance with LORS. In ACC Alternative Two, the increase over ambient noise levels at the Ball Field is 8 dBA, as compared to an increase of 6 dBA before. There would be no change in the conclusions resulting from the previous analysis of the ACC Alternatives.

In Table 17 (Hybrid Alternative One), the cumulative noise levels would increase by 1 dBA at receivers R4, R5, R10 and R11. The cumulative noise level would be unaffected at R1. The effect of this increase is to cause the noise level to exceed LORS at R5, the RV Park. For Hybrid Alternative Two, as reported in Table 19, the cumulative levels would increase by 1 dBA at R1, R5, R10, and R2. The noise level would be unchanged at R4 and R11. At the Ball Field, the cumulative noise level would increase by 3 dBA. The effects of these changes would be to exceed the LORS at the RV Park (R5), and to cause an increase of 11 dBA over the ambient noise level at the Ball Field, as compared to 8 dBA before. For the Hybrid Cooling Alternatives, the re-calculated values result in the conclusion that LORS would be exceeded at the RV Park, and that the change in ambient noise levels at the RV Park (+5 dBA) and the Ball Field (+11 dBA) would likely be significant.

On the basis of the fact that the predicted sound levels for arrays of fans do not show increases in noise levels as a direct function of the number of fans, staff had assumed that there would be no practical difference in noise levels for multiple arrays of fans as compared to single arrays. Although staff believes that one array of fans would provide some shielding of the other, so that the increase in noise levels for two fan arrays may be less than 3 dBA, the vendor, who is charged with providing defensible estimates of noise produced by its products, apparently does not include the effects of such shielding when providing noise estimates.

Duke also describes apparent errors in simple mathematics in some of the noise-related tables. Staff notes that the calculations upon which the tables were based assumed precision of 0.1 dBA. However, the results shown by the tables are

rounded to the nearest decibel, so some of the calculated values, though correct, appear to be in error by 1 decibel.

Finally, Duke raises a concern about the amount of shielding assumed by staff in its calculations. Staff assumed a nominal shielding factor of 5 decibels, and applied that factor only when it was apparent that view of the cooling fan array would be largely shielded or obstructed by the power plant components, including the combustion gas turbines, heat recovery steam generators and, for the RV Park, the proposed noise control barrier. No specific source or barrier heights were assumed. In most cases, shielding was not a significant factor in determining compliance with the significance criteria. This is because, when the power plant is between the cooling fan noise sources and the receivers, the power plant is the dominant noise source. Staff believes that the nominal shielding assumptions are reasonable, and that its conclusions regarding the effects of shielding on predicted noise levels remain valid.

Duke notes that a comparison of Tables 12 to 17, and 14 to 19, shows discrepancies in values that one might presume to be the same in each case. The variations are due to different shielding assumptions for each source, and to rounding of results. For example, the large variation in results for receiver R10 in Tables 14 and 19 is due to the fact that shielding was assumed only for the ACC units, and not for the wet cooling towers, which dominated the noise exposure in the hybrid system at that receiver. Therefore, there is no reason to change the numbers in the four tables.

VISUAL RESOURCES

Testimony of Michael Clayton

The visual resources analysis contained in the Cooling Options Report compared the various cooling options to a baseline established by the existing Morro Bay Power Plant. Similar to the proposed project, the cooling options would cause significant visual impacts on views from Morro Strand State Beach (KOP 5), Morro Dunes Trailer Park and Resort Campground (KOP 6), and Morro Creek at Embarcadero Road (KOP 7). These significant visual impacts would result from the close proximity of highly contrasting industrial features. Although the cooling options would include additional

structural elements of substantial size, it is important to point out that these structures would be partially screened by the power generation facilities that would be located between the viewers at KOPs 5, 6, and 7 and the various cooling facilities. In spite of this partial structural screening, the visual impact would remain significant. Mitigation of this impact relies most heavily on the vegetative screening to be required under staff's Condition of Certification VIS-3 (though the surface treatment requirements of Condition of Certification VIS-1 will also help to mitigate this impact).

The Applicant states that there are additional negative visual impacts associated with the 19-foot diameter connecting pipe racks, which would be elevated approximately 27 feet above the ground. While these structural elements would contribute additional industrial character to the project site, they would not extend above other taller structures on the site or cause significantly more view blockage beyond that which would be caused by the other project structures. Effective implementation of Condition of Certification VIS-3 would screen from view (KOPs 5, 6, and 7) not only a majority of the power generation and cooling structures, but the pipe racks as well. From all other viewpoints, the visual change would be beneficial when taking into account the removal of the existing Morro Bay Power Plant and three existing stacks.